

Figure 7C is a cut away perspective view of a contact end extending through a pocket looking down into a pocket;

Please insert the following paragraph on page 3, line 30;

Figure 24C is a cross-section taken through the plug contacts of Figure 16 mated with the receptacle contacts of Figure 24;

Figure 24D is a top view of the receptacle contacts taken along line 24D-24D of Figure 24;

Please insert the following paragraph on page 8, line 7:

Figures 7A-7C depict the end of a contact (could be any of the contacts 59, 61, 84, 86 described in detail below) extending through a pocket 25. Figures 7A and 7B are cross-sections showing a contact end extending through a recess 22 and a pocket 25. Figure 7C is a cut away isometric view showing the contact end extending through the recess 22 and the pocket 25. It will be appreciated that the other contacts likewise extend through the other pockets 25 and recesses 22 as shown in Figure 8. Figure 7C is a cut away perspective view looking down into a pocket as in Figure 7 with a contact 59, 61, 84, 86 extending through the recess into the pocket and there being the gap 25a disposed around the contact. It will also be appreciated that although Figures 7A and 7B are cross-sections through the plug assembly, the receptacle assembly is in this respect similar, as it contacts also extend through the recesses into the bases pockets in the interstitial diamond configuration. As shown with the diamond configuration, wetting around the entire periphery of the

83 proposed  
contact end extending through the recess 22 is ensured because there is a gap 25a around the periphery of the contact end within the pocket due to the diamond shape. This is also shown with reference to Figure 7 and Figure 8.

✓  
Please amend the paragraph beginning on page 13, line 27 to read as follows:

84  
Extending longitudinally along the underside of the receptacle cover 70 is preferably a support member 90. The support member 90 preferably has a plurality of ridges 92 and grooves 94 for receiving a receptacle contact assembly member 96, as shown in the cross-section of Figure 23. As is also shown in Figure 23, the contact assembly is preferably center aligned with the support member 96. By aligning the receptacle contact assembly in a groove of the support member 96, the contact assembly is aligned within the receptacle from the center. This is in contrast to a design in which the contacts assembly would be aligned from its lateral edges. This center alignment feature is a preference and the invention can be practiced with or without this feature and is only limited as stated expressly in the claims.

Please amend the paragraph beginning on page 13, line 31 to read as follows:

Figure 24 depicts a perspective view of a preferred embodiment of a receptacle contact assembly 72 that can be used with this invention before it has been singulated to remove portions 98. The receptacle contact assembly 72 includes alternating ground 84 and signal 86 contacts and a plastic carrier 100. Figure 24D is a top view looking down onto Figure 24 with the carrier

98 removed and depicts the arrangement of signal and ground contacts. Although the contacts differ in construction, the general construction of the receptacle contact assembly 72 can be understood with reference to the discussion regarding the plug contact assembly 16. The receptacle contacts are preferably stamped and then molded to a plastic carrier 100. They are then singulated to remove unwanted portions 98. The ends 102 of the receptacle contacts can be but need not be gold striped to ensure wetting with solder 29 when disposed in a base pocket 25 as shown in Figures 22 and 23. The mating ends of the contacts can also be gold striped for high reliability and to reduce mating forces. The ends 104 of the plastic carrier 100 are preferably sized and shaped so that they can be inserted into the slots 30 of the base 14, as shown in Figure 19.

Please amend the paragraph beginning on page 15, lines 11-20 to read as follows:

Figure 24A is a schematic diagram of the arrangement of the signal and ground contacts in the first preferred embodiment. The signal and ground contacts are oriented in what is referred to as an "in-line stripline" configuration. In this configuration, there are individual ground contacts 59, 84 on either side of each signal contact 61, 86, which can also be understood with reference to Figures 3 and 19. As will be appreciated from Figures 3 and 19, individual ground contacts 59, 84 are disposed on either side of the signal contacts 61, 86 to provide an electrical ground reference for the signal contacts and to provide the electrical stripline configuration. The mating of the signal and ground contacts of the plug and receptacle assemblies is also shown in

AS-  
concluded

contacts, including the gap H, the thickness t, the width w and pitch p, can be varied to achieve the desired connector impedance and electrical performance.

Please amend the paragraph starting on page 15 line 21 to read as follows:

Although this invention is not limited to such in-line stripline configurations, the in-line stripline configuration has several advantages (relative to the I-Beam approach described below that uses grounding plates on either side of a row of signal contacts) including advantages in terms of costs and manufacturing. For example, the same contact can be used in all locations, and the contacts can be continuously stamped, which produces relatively consistent contact gaps (H). This is beneficial in achieving the desired optimum electrical performance. Additionally, all connector contacts can be used for either differential or single ended signals or any combination of these. Molding of the carrier 104 shown in Figure 24 is also easier because the contacts can be molded in a vertical row with contacts oriented so that the thin width is in the direction of mold closing. Another advantage is that because ground planes are not used, the connector mass (including its thermal mass) is lower which results in easier application to customers' printed circuit boards (PCB).

---

Please amend the paragraph starting on page 17, line 24 to read as follows:

Ag

Figure 32 is a schematic description of the configuration of the contacts in the second embodiment. This arrangement is referred to as an I-Beam configuration with grounding

Conduct  
6 inch  
A

plates. In this configuration ground plates 606 provide the electrical ground reference for the signal contacts. This is in contrast to the in line stripline approach described above which uses individual ground contacts. The geometric relationship including the pitch  $p$ , the thickness  $t$ , and the gap  $h$ , and the width  $w$  can be controlled to obtain the desired connector impedance and electrical performance. Although the in-line stripline configuration has some advantages, which are noted above, it will be understood, that either the in-line stripline or I-Beam configuration with grounding plates can be used to obtain the desired electrical performance.

---

**In the claims:**

Please amend claims 8, 13 and 22 to read as follows.

8. The modular mezzanine connector system of claim 1, wherein the plurality of plug contacts and receptacle contacts comprise signal contacts and are disposed in a row with each contact oriented perpendicular to a ground plane.

13. The method of claim 10, wherein inserting the plurality of plug contacts further comprises inserting the plurality of plug contacts in a row with each contact oriented perpendicular to a ground plane and wherein inserting the plurality of receptacle contacts further comprises inserting the receptacle contacts in a row perpendicular to a ground plane.